

### **Patent Claims**

1. A protective gas consisting of a cold gas for the non-vacuum electron-beam welding of metallic materials, particularly light metals.
2. The protective gas according to Claim 1, characterized in that the cold gas consists of inert gas.
3. The protective gas according to Claim 2, characterized in that the inert gas is preferably helium.
4. The protective gas according to Claim 1, characterized in that the cold gas consists of a low-reactivity gas.
5. The protective gas according to Claim 4, characterized in that the cold gas is nitrogen.
6. The use of the protective gas for the non-vacuum electron-beam welding of metallic materials, particularly light metals in automotive production.